Ministry of Environment and Energy

FOR YOUR information

JANUARY 1996

Solid waste incineration

In waste management, the Ministry of Environment and Energy sets the highest priority on the 3Rs. In fact, 3Rs regulations require almost 90 per cent of Ontario residents to participate in 3Rs programs. The ministry has standards in place to ensure those residential, commercial, industrial and institutional non-hazardous wastes which cannot be reduced, reused or recycled are disposed of in a safe and environmentally-sound manner.

In Ontario, the majority of the wastes remaining after 3Rs is sent to landfill. Incineration is now an acceptable waste disposal option. Modern technology, which meets the strict operating and pollution control guidelines set by the ministry, must be used.

The government has lifted the ban on the construction of new municipal waste incinerators to allow a municipality or a private proponent to consider the full range of environmentally-sound waste disposal options.

REGULATING INCINERATION

In addition to already strict pollution control requirements, the ministry has revised the incineration guideline to establish tough new air emission standards which will provide incentive for the development of new and improved technologies. This will ensure that new incinerators employ the most advanced incineration and pollution control technology available today and that the environment and human health are protected.

The guideline requires operators to run incinerators at peak performance at all times by installing monitors that measure stack emission levels continuously.

The ministry will regularly review the guideline and update it to reflect technological improvements and new health and environmental information.

The provisions in the guideline apply to the expansion or modification of existing incinerators as well as to new incinerators. Biomedical, wood waste and sewage sludge incinerators are already subject to regulations which are under review.

All proposed incinerator facilities will be considered under the ministry's approval process. This includes regulatory requirements for public input. The guideline standards will be applied through the resulting certificates of approval issued by the ministry.

TODAY'S INCINERATORS

Today's incinerator represents state-of-the-art technology and is designed to have a negligible effect on the environment and on human health.

A modern incinerator facility can contain a myriad of different operations, depending on what the owner wants to do. A facility would be expected to have processes that separate recyclable materials from the waste stream, burn non-recyclable material, recover energy from the combustion gases, clean pollutants out of the stack gases and manage the ashes. All this can be carefully controlled by plant

operators and by computers that constantly measure plant operation and emissions.

First, valuable materials, such as aluminum, steel, paper and cardboard, can be removed and sold. At the same time, objects that would interfere with proper incinerator operation, such as mattresses, rugs and propane tanks, are removed for special disposal.

What's left is ready to burn. It is fed at a controlled rate to the incinerator so the combustion process can be properly regulated. The correct amount of air is automatically mixed with the waste to ensure complete combustion.

The hot gases from the combustion process are passed through a boiler to produce steam or hot water. Both can be used for heating. Steam can also be used to generate electricity. Either form of energy could be used in the incinerator facility or sold to a local industry or electric utility, if needed.

Pollution control equipment at the plant removes acid gases, heavy metals, particulates (dusts) and trace organics. This equipment can include scrubbers (which use water and lime to scrub out acid gases), particulate filters to remove solid particles and activated carbon to remove mercury and trace organics such as dioxin and furan.

Stack gases are monitored 24 hours a day and levels of more than 100 heavy metals, trace organics and acid gases are checked annually with the plant in full operation to be sure the plant stays within the standards set by the Ministry of Environment and Energy.

The ash that remains after the burning is safe for disposal in landfill sites but incinerator owners are now looking into ways to recycle this material. Fly ash, which is collected in the pollution control equipment, may require special treatment or disposal so it is managed separately from the other ashes.

Building a modern incinerator can be expensive but long-term costs are competitive with landfill.

The four solid waste incinerators in Ontario — Peel Resource Recovery Inc. in Brampton, General Motors in Oshawa, Victoria Hospital Corporation in London and SWARU (Solid Waste Reduction Unit) in Hamilton — now burn about four per cent of Ontario's residential wastes and non-hazardous commercial, industrial and institutional wastes.

In comparison, the U.S. burns more than 16 per cent of municipal waste; Japan about 50 per cent and Sweden more than 70 per cent. There are more than 400 incinerators in the world.

FOR MORE INFORMATION

Copies of *Guideline A-7: Combustion and Pollution Control Requirements for New Municipal Waste Incinerators* (PIBS 1746e) are available from:

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